

Phillips Scientific

Sixteen Channel Discriminator

NIM MODEL 706

FEATURES

- Sixteen Channels in Single Width NIM Module
- 100 MHz Input to Output Rate
- Common Threshold Control -10mV to -1 Volt
- Common Width Control 5 nS to 150 nS
- Fast Common Veto and Bin Gate
- Non-Updating Outputs
- Two Outputs Per Channel - One Pair Double-Amplitude Bridged
- Reliable Current-Switched Outputs

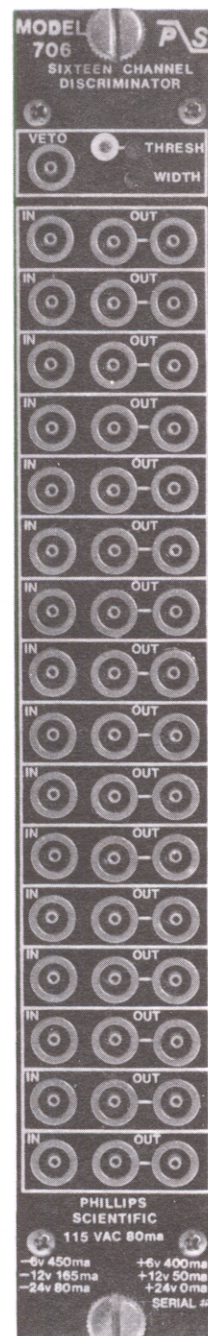
DESCRIPTION

The Model 706 is a 100 MHz Leading Edge Discriminator specifically designed for experiments with large counter arrays, offering high performance and reliability at a reasonable cost. The 706 features sixteen channels with common threshold and width controls. In addition, a fast veto input and a Bin Gate are common to all channels.

The 706 has high input sensitivity of -10 mV variable to -1 volt via a 15-turn front panel control. A front panel test point provides a DC voltage equal to the actual threshold to insure accurate settings, likewise, output durations are continuously variable via a front panel control over the range of 5 nSec to 150 nSec. The 706 employs non-updating regeneration circuits for output widths that are always the same duration regardless of the input rate conditions.

A fast veto input allows simultaneous inhibiting of all channels to reject unwanted events early in the system. Similarly, a bin gate will inhibit the entire module when applied via the rear connector.

The outputs are the current source type with one pair of negative bridged outputs for each channel. When only one output from the bridged pair is used, a double-amplitude NIM pulse (-32 mA) is generated for driving long cables. Two normal NIM levels are produced when both of the bridged outputs operate into 50 ohm loads. The output risetimes and falltimes are typically 1 nSec, and their shapes are unaffected by the loading conditions of the other outputs.



INPUT CHARACTERISTICS

General:

One LEMO connector input per channel; 50 ohms, $\pm 1\%$, DC coupled; less than $\pm 2\%$ input reflection for a 2.0 nSec input risetime. Input protection clamps at ± 7 Volts and ± 5 Volts and can withstand ± 2 amps for 1 μ Sec with no damage to the input.

Threshold:

-10 mV to -1 Volt; 15-turn screwdriver adjustment; better than $\pm 0.2\%/^{\circ}\text{C}$ stability; front panel test point provides a DC voltage equal to the actual threshold setting.

Fast Veto:

One LEMO connector input common to all sixteen channels; accepts normal NIM level pulse (-500 mV), 50 ohms, direct coupled; must precede the negative edge of input pulse by 5 nSec; 5 nSec minimum input width.

Bin Gate:

Rear panel slide switch enables or disables slow bin gate in accordance with TID-20893.

OUTPUT CHARACTERISTICS

General:

Two LEMO connector outputs per channel; One negative bridged pair, deliver -32mA into a single 50 ohm load (-1.6 volts), or -16mA (-800mV) when both outputs 50 ohm terminated. The output rise and fall times are less than 1.5 nSec from 10% to 90% levels.

Width Control:

One control per module; 15-turn screwdriver adjustment; outputs continuously variable from 5 nSec to 150 nSec non-updating outputs, $\pm .35\%/^{\circ}\text{C}$ stability. The output widths track to within 2 nSec or $\pm 7\%$ or whichever is greater for all sixteen channels.

GENERAL PERFORMANCE

Continuous Repetition Rate:

Greater than 100 MHz, with output width set at minimum.

Pulse-Pair Resolution:

Better than 10 nSec, with output width set at minimum.

Input to Output Delay:

Less than 9 nSec.

Multiple Pulsing:

One and only one output pulse regardless of input pulse amplitude or duration.

Power Supply Requirements:

- 6 Volts @ 450 mA	+ 6 Volts @ 400 mA
- 6 Volts @ 165 mA	+ 12 Volts @ 50 mA
-24 Volts @ 80 mA	+24 Volts @ 80 mA
115 Volts AC @ 80 mA	

NOTE: All currents are within NIM specification limits permitting a full powered bin to be operated without overloading.

Operating Temperature:

0°C to 70°C ambient.

Packaging:

Standard single width NIM module in accordance with TID-20893 and section ND-524.

Quality Control:

Standard 36-hour, cycled burn-in with switched power cycles.

Options:

Call Phillips Scientific to find out about available options.

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"A THEORY DEVELOPMENT COMPANY"
150 Hilltop Road • Ramsey, NJ 07446 • (201) 934-8015 • Fax (201) 934-8269